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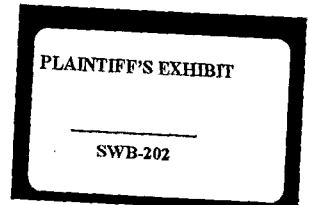
PEC
2025.2

Bell Laboratories

subject: Asbestos Survey C&P Telephone Co.
Manholes (Alexandria, VA)
Case: 48106-3
Reference: 1752

date: August 30, 1983
from: P. A. Huggins
MH 78691
1F-110 X7927

MEMORANDUM FOR RECORD



Introduction

On July 27, 1983, a survey was conducted at two C&P Telephone Company manholes located in Alexandria, Virginia. The survey was requested by Mr. Calvin Deemer (Staff Manager-Safety, C&P Telephone Company) in response to employee questions regarding asbestos exposure during work in manholes situated near busy traffic intersections. Employees were concerned that asbestos released from vehicle brake linings would result in significant asbestos exposure in manholes.

Conclusions

- No asbestos was detected in the dust samples collected at two manhole locations.
- All fiber concentrations measured during this survey are below applicable Occupational Safety and Health Administration (OSHA) exposure standards.
- Employees should be informed of the results of this survey.

Materials and Methods

Air sampling and filter analysis were conducted in accordance with National Institute for Occupational Safety and Health (NIOSH) methodology (NIOSH P&CAM 239), "Asbestos Fibers in Air". Sampling was performed using Dupont Model P2000, Bendix Model HD 55, and MSA Model G personal sampling pumps, and 0.8 um mixed cellulose ester filters (Millipore Corporation). Pumps were operated at a flow rate of approximately 2.0 liters per minute (LPM) and calibrated before and after sampling using a Gilmont precision rotameter (No. B9165). Filter analyses was conducted by sizing and counting fibers using a phase contrast microscope. All fibers which have a physical dimension longer than 5 micrometers (um) and a length to diameter ratio of 3 to 1 or greater, were counted.

Bulk samples were collected in glass vials and analyzed by polarized light microscopy using dispersion staining techniques. Prior to analysis, bulk samples were washed with distilled water and acetone to remove soluble dirt and debris.

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Results

Bulk samples were collected at three sites in each manhole visited. These samples included bulk dirt and dust from the manhole collars, from the surface of cable splice covers and from the bottom floor of the manhole. Analyses of these individual bulk samples by polarized light microscopy indicated there was no asbestos present. The limit of detection for this method is on the order of 1t.

Air samples were collected at each manhole at above ground locations as well as inside the manholes during routine ventilation procedures. Results are listed in Table 1.

Discussion

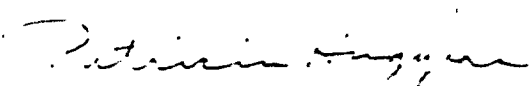
Airborne fiber concentrations (Table 1) measured at all sampling locations ranged from 0.006 fibers/cm³ to 0.103 fibers/cm³. During this survey, C&P Telephone Company employees at the manhole site were instructed to test and ventilate the manhole in accordance with Bell System Practices (BSP-620-140-301). The highest fiber concentration occurred during the initial purging of the manhole with the blower (0.103 fibers/cm³ and 0.93 fibers/cm³). However, no employees occupy the manhole during this period.

Air samples were collected at each manhole at above ground locations as well as inside the manholes during routine ventilation procedures. Results are listed in Table 1.

Above ground fiber concentrations listed in Table 1 are as follows: 0.013 fibers/cm³, 0.018 fibers/cm³, and 0.006 fibers/cm³. These values are lower than those observed in the manhole during continuous ventilation (i.e., 0.012 fibers/cm³ to 0.062 fibers/cm³). This is an expected outcome since dust in the manhole is disturbed by the forced air blower.

Since no asbestos was detected in the bulk samples, it may not be appropriate to compare airborne fiber concentrations to the OSHA exposure limits for asbestos. (Permissible exposures limit-PEL 2 fibers/cm³ and action level-AL 0.1 fibers/cm³.)

However, even if these standards are utilized, the fiber concentrations measured during periods in which the manhole would be occupied, are below the most stringent OSHA exposure limit for airborne fibers, the OSHA action level for asbestos (0.1 fibers/cm³).



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Patricia Huggins

Attachment
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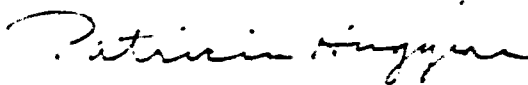
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Patricia Huggins

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Attachment
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Copy to
C. Deemer - C&P
P. M. Rich
A. G. Bickelman, M.D.

~~J. M. Degen~~ - AT&T
R. W. Stone, M.D.

W. J. Schreibeis
G. M. Wilkening

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Table 1

Airborne Fiber Concentrations Measured at Two C & P Telephone Co. Manholes (7/27/83)

<u>SAMPLE</u>	<u>SAMPLE LOCATION</u>	<u>SAMPLE DURATION</u>	<u>VOLUME OF AIR SAMPLED</u>	<u>FIBERS COUNTED</u>	<u>CONCENTRATION fibers/cm³</u>
	MANHOLE 1:				
1752-01	- Personal Sample - (Above Ground)	250	495	12.5	0.013
1752-02	- Above Ground	249	483.1	11	0.018
1752-03	- In Manhole during Purge 1	47	91.7	22.5	0.093
1752-04	- In Manhole after purge during continuous ventilation	181	349.3	22.5	0.041
1752-05	- In Manhole after purge during continuous ventilation	179	324.0	9	0.012
	MANHOLE 2				
1752-06	- Above Ground	160	299.2	6.5	0.006
1752-07	- In Manhole During Purge 1	22	45.5	10	0.103

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Table 1
(cont'd)

<u>SAMPLE</u>	<u>SAMPLE LOCATION</u>	<u>SAMPLE DURATION</u>	<u>VOLUME</u>	<u>FIBERS COUNTED</u>	<u>CONCENTRATIONS FIBERS/CN³</u>
	- MANHOLE 2:				
1752-08	- In manhole after purge during continuous ventilation	136	277.4	21	0.048
1752-09	- In manhole after purge during continuous ventilation	139	287.7	27	0.062
1752-10	- In manhole after purge during continuous ventilation	139	291.9	20	0.043
1752-	-	-	-	4	-

1- Manhole is not occupied during purge period per BSP 620-140-501, "Testing And Ventilating Manholes"

* Concentrations reported are corrected for blank.

N.B. Unless noted otherwise, All samples are area measurements.
Manhole 1- Intersection, Duke St. and North Jordan St.
Manhole 2- Intersection, N. Patrick and Cameron St.

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